UNITED STATES PATENT AND TRADEMARK OFFICE

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _18 August 2008_.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _15-34_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _15-34_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _08 August 2001_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

Detailed Action

This office action is in response to the correspondence received on August 18, 2008.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August

18, 2008 has been entered.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of
> making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the
> art to which it pertains, or with which it is most nearly connected, to make and use the same and shall
> set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 24 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply

with the enablement requirement. The claim(s) contains subject matter which was not

described in the specification in such a way as to enable one skilled in the art to which it

pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 24 is dependent on claim 23. Claim 23 states "transmitting the update message

to the one or more children of the source node by a unicast mode, if a number of the

one or more children of the source node is less than a predefined threshold". Claim 24

then adds that that predefined threshold is one. That would mean that there are zero

children. If there are zero children to send messages to, it is unclear as to how a

unicast message can be sent to children as claimed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in
section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
such that the subject matter as a whole would have been obvious at the time the invention was made to a
person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived
by the manner in which the invention was made.

Claims 15-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gupta et

al ("An Adaptive Protocol for Reliable Multicast in Mobile Multi-hop Radio Networks,"

(IEEE, 1999)) in view of Humblet et al (US Pat No: 5,671,357), hereafter referred to as

Gupta and Humblet, respectively.

1. With regards to claim 15, Gupta teaches through Humblet, a method for

   disseminating topology and link state information in a multi- hop network, the

   method comprising: maintaining, at a source node in the multi-hop network, a

   path tree rooted at the source node *(Gupta teaches a tree rooted at the core*

   node (equivalent to the claimed source node); see section 3.1.1, Gupta);

   originating, at the source node, an update message containing topology *(see*

   Humblet below) or link state information *(Gupta teaches a core node (source*

   node) that initiates (originates) messages; see section 3.1.1, Gupta); and

   sending the update message, by the source node, to one or more children of the

source node that are indicated by the path tree rooted at the source node *(Gupta*
teaches a tree rooted at the core node (source node). The core node initiates
messages and sends the messages to the children; see section 3.1.1, Gupta).

However Gupta does not explicitly cite the existence of topologies within the
update messages. In the same field of endeavor, Humblet teaches a network
system where the nodes each have databases with topology information and the
topology updates (equivalent to the claimed update message containing
topology) are sent from one node to another; see column 3, line 50 - column 4,
line 1, Humblet). The updating of topology information by transferring updates by
nodes to one another allows nodes to efficiently know the whereabouts of other
nodes. This is useful since the nodes will then know what other nodes they can
communicate with. Therefore it would have been obvious to one skilled in the
art, during the time of the invention, to have combined the teachings of Gupta
with those of Humblet for providing an efficient manner in which to update nodes
with topology information; see column 1, lines 45-49, Humblet.

2. With regards to claims 16 and 26, Gupta teaches through Humblet the method
   wherein the update message relates to one or more links in the network *(see*
   column 4, lines 41-42, Humblet).

3. With regards to claims 17 and 27, Gupta teaches through Humblet the method
   wherein the update message includes data indicating whether the update

message should be forwarded by the one or more children of the source node

(Gupta teaches messages being sent to the children of the core node (source

node) and those children are able to send the messages to their children; see

section 3.1.1, Gupta.).

4. With regards to claims 18 and 28, Gupta teaches through Humblet the method

wherein the path tree is a minimum hop path tree *(Gupta teaches a multi-hop*

tree which is a path tree that implicitly aims to minimize the number of hops; see

last sentence of section 1 and first paragraph of section 2, Gupta).

5. With regards to claim 19, Gupta teaches through Humblet the method wherein

the maintaining comprises: receiving, by the source node, link state information

for one or more nodes in the path tree *(Link state information taught by Gupta in*

at least the second paragraph of section 2).

6. With regards to claims 20 and 29, Gupta teaches through Humblet the method

wherein the source node is connected to the one or more children of the source

node by one or more wireless communication links *(see 1st paragraph of the*

introduction, section 1, Gupta).

7. With regards to claims 21 and 33, Gupta teaches through Humblet the method wherein the sending comprises broadcasting the update message to the one or more children of the source node, if a number of the one or more children of the source node exceeds a predefined threshold *(Gupta teaches how the core node (source node) broadcasts messages to one or more children when there is at least one child node (exceeds a threshold of one); see section 3.1.1, Gupta).*

8. With regards to claims 22 and 34, Gupta teaches through Humblet the method wherein the predefined threshold is one *(Gupta teaches how the core node (source node) broadcasts messages to one or more children when there is at least one child node (exceeds a threshold of one); see section 3.1.1, Gupta)*

9. With regards to claim 23, Gupta teaches through Humblet the method wherein the sending comprises transmitting the update message to the one or more children of the source node by a unicast mode, if a number of the one or more children of the source node is less than a predefined threshold *(see section 2, paragraph 3, Gupta).*

10. With regards to claim 24, Gupta teaches through Humblet the method wherein the predefined threshold is one *(see section 2, paragraph 3, Gupta).*

11. With regards to claim 25, Gupta teaches through Humblet a method for

disseminating topology and link state information in a multi-hop network including

a plurality of nodes, the method comprising: receiving, at a first node in the multi-

hop network, an update message containing topology or link state information

(see Humblet below), the update message being received from a parent of the

first node that is indicated by a path tree rooted at a source from which the

update message originated *(Gupta teaches a tree rooted at the core node*

(equivalent to the claimed source node); see section 3.1.1, Gupta. Within the

tree an update message is sent to a child node who forwards that update

message onto their child node; see section 3.1.1, Gupta. The first child node is

equivalent to the claimed first node. In node tree structures (such as the claimed

invention and Gupta's design) it is implicit that child nodes have parent nodes.

Gupta also teaches each child having a parent node and receiving updates

messages from their parent node (equivalent to the claimed parent node); see

Property 3 within p. 5 and section 3.2, Gupta); updating, at the first node, a table

of network topology stored at the first node in accordance with the update

message *(Gupta teaches the first child node (first node) sending update*

messages to its child node; see section 3.1.1, Gupta. See Humblet below for

topology updates); and forwarding the update message, by the first node, to one

or more children of the first node that are indicated by the path tree rooted at the

source *(Within the tree an update message is sent to a child node who forwards*

that update message onto their child node; see section 3.1.1, Gupta. The first

child node is equivalent to the claimed first node and its child is equivalent to the claimed child node.).

However Gupta does not explicitly cite the existence of topologies within the update messages. In the same field of endeavor, Humblet teaches a network system where the nodes each have databases with topology information and the topology updates (equivalent to the claimed update message containing topology) are sent from one node to another; see column 3, line 50 - column 4, line 1, Humblet). The updating of topology information by transferring updates by nodes to one another allows nodes to efficiently know the whereabouts of other nodes. This is useful since the nodes will then know what other nodes they can communicate with. Therefore it would have been obvious to one skilled in the art, during the time of the invention, to have combined the teachings of Gupta with those of Humblet for providing an efficient manner in which to update nodes with topology information; see column 1, lines 45-49, Humblet.

12. With regards to claim 30, Gupta teaches through Humblet the method further comprising: sending, by the first node, a new parent message to a second node in the network, wherein the new parent message indicates that the second node has been selected as a parent for the first node *(see section 3.1.2, Gupta).*

13. With regards to claim 31, Gupta teaches through Humblet the method further comprising: receiving, by the first node, a new update message from the second node *(see section 3.1.2, Gupta)*.

14. With regards to claim 32, Gupta teaches through Humblet the method wherein the new update message includes a serial number, the serial number being greater than a serial number provided by the first node to second node in the new parent message *(see section 3.1.2 and the JOIN and JOIN_ACK commands within section 3.3, Gupta)*.

15. The obviousness motivation applied to claims 15 and 25 are applicable to their respective dependent claims.

Response to Remarks

The amendment received on August 18, 2008 has been carefully examined but is not deemed fully persuasive. The following are the examiner's response to the applicant's assertions.

The principle point of contention addressed by the applicant involves the claim feature of a path tree rooted at a source that originated the update. The applicant contends that neither prior art teach such limitations, the examiner respectfully disagrees with both of these rationales for the following reasons. Gupta teaches in

section 3.1.1, a tree rooted at the core node (equivalent to the claimed source node).

Gupta also clearly states that the core node (source node) **initiates** (originates)

multicasting (sending messages) (see section 3.1.1, second paragraph, Gupta). That

is, the core node is the source of the messages, as claimed. Applicant makes the

contention that initiating a message is not equivalent to originating a message. The

examiner disagrees because originate (the base word for originating) is defined as

initiate by the Merriam-Webster online dictionary. In addition, the Humblet prior art

teaches the topology updates (equivalent to the claimed update message containing

topology) that are sent from one node to another; see column 3, line 50 - column 4, line

1, Humblet).

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to AZIZUL CHOUDHURY whose telephone number is

(571)272-3909. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Jason Cardone can be reached on (571) 272-3933. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Azizul Choudhury/
Examiner, Art Unit 2445